WHAT IS CLAIMED IS:

1. A data transfer method in a computer system, comprising: plural computers; plural memory devices; a relay device which connects the computers and the memory devices; and a management device which manages the computers, the memory devices, and the relay device,

wherein the management device sets virtual memory areas of the memory devices for the plural computers and holds information on contents of the setting as first information,

the relay device holds second information which is created based upon the first information,

the virtual memory areas correspond to memory areas in the respective memory areas or a memory area formed by combining memory areas in the plural memory devices, and

the relay device selects one virtual memory area from the second information and, with the case in which the selected virtual memory area is a memory area formed by combining the memory areas in the plural memory devices as an opportunity, performs data transfer among the plural memory devices.

2. A data transfer method according to claim 1,

wherein the relay device refers to the second information to perform transfer of data among the plural memory devices with the case in which memory areas with a relatively small capacity not corresponding to the virtual memory areas increase as an opportunity.

3. A data transfer method according to claim 2,

wherein the second information is updated based upon the first information.

4. A data transfer method according to claim 2,

wherein, in transferring data among the plural memory devices, third information indicating whether data transfer is incomplete or data has been transferred for each unit of data transfer is set, and the indication that the data transfer is incomplete is changed to the indication that the data has been transferred each time the unit of data transfer is transferred to update a progress state of data transfer.

5. A data transfer method according to claim 3,

wherein the second information has a flag indicating a state of whether or not data transfer is in progress for the respective virtual memory areas, and

when the computers access the virtual memory areas, if the flag of the virtual memory area corresponding to the second information indicates data transfer in progress, the relay device judges which of a data transfer source and a data transfer destination should be accessed according to the third information and does not interrupt data access from the computers to the virtual memory areas during data transfer.

6. A data transfer method according to claim 5,

wherein the relay device directly copies data of a memory area, which is a part of the virtual memory areas and for which

data transfer is performed, to a memory area of the data transfer destination.

7. A data transfer method according to claim 5,

wherein the relay device once copies data of a memory area, which is a part of the virtual memory areas and for which data transfer is performed, to a memory area in the memory device prepared in advance for data transfer and, then, indirectly copies the data to a memory area of the data transfer destination.

8. A data transfer method according to claim 5,

wherein the relay device once copies data of a memory area, which is a part of the virtual memory areas and for which data transfer is performed, to an unused memory area of the memory areas of the plural memory devices and, then, indirectly copies the data to a memory area of the data transfer destination.

9. A data transfer method according to claim 5,

wherein the relay device keeps data, which is a part of the virtual memory areas at the time of data transfer, in the virtual memory areas before data transfer temporarily or for a designated period even after the data transfer.

10. A data transfer method according to claim 5,

wherein the relay device once copies data of a memory area, which is a part of the virtual memory areas and for which data transfer is performed, to a memory area in the relay device prepared in advance for data transfer and, then, indirectly copies the data to a memory area of the data transfer destination.

11. A data transfer method according to claim 1,

wherein, in the case in which the relay device in the computer system is constituted redundantly, the management device distributes the first information to all the relay devices and uses the first information as an information source of the second information.

12. A data transfer method according to claim 1,

wherein, in the case in which components inside the relay device in the computer system are constituted redundantly and components having the second information are constituted redundantly, the second information is always synchronized among the components constituted redundantly, whereby, in the case in which one of the components constituted redundantly fails, the relay device uses the second information of the other components constituted redundantly.

13. A computer system comprising:

plural computers;

plural memory devices;

a relay device which connects the computers and the memory devices with each other; and

a management device which manages the computers, the memory devices, and the relay device,

wherein the management device sets virtual memory areas of the memory devices for the plural computers and holds information on contents of the setting as first information,

the relay device holds second information which is created based upon the first information,

the virtual memory areas correspond to memory areas in the respective memory areas or a memory area formed by combining memory areas in the plural memory devices, and

the relay device selects one virtual memory area from the second information and, with the case in which the selected virtual memory area is a memory area formed by combining the memory areas in the plural memory devices as an opportunity, performs data transfer among the plural memory devices.

14. A computer system according to claim 13,

wherein the relay device refers to the second information to perform transfer of data among the plural memory devices with the case in which memory areas with a relatively small capacity not corresponding to the virtual memory areas increase as an opportunity.

15. A computer system according to claim 14,

wherein the second information is updated based upon the first information.

16. A relay device connecting computers and memory devices with each other, comprising:

an interface section for making connection with the computers or the memory devices;

a routing control section which performs routing of a packet received from the computers or the memory devices; and

a management section which manages the entire relay device,

wherein the management section holds second information which is created based upon information on contents of virtual memory areas of the memory device set for the computers,

the virtual memory areas correspond to memory areas in the respective memory devices or a memory area formed by combining memory areas in the plural memory devices, and

the management section selects one virtual memory area from the second information and, with the case in which the selected virtual memory area is a memory area formed by combining the memory areas in the plural memory devices as an opportunity, performs control of data transfer among the plural memory devices via the routing control section and the interface section.

17. A relay device according to claim 16,

wherein the second information has a flag indicating a state of whether or not data transfer is in progress for the respective virtual memory areas, and

when the computers access the virtual memory areas, if the flag of the virtual memory area corresponding to the second information indicates data transfer in progress, the control section judges which of a data transfer source and a data transfer destination should be accessed and does not interrupt data access from the computers to the virtual memory areas during data transfer.

18. A relay device according to claim 17,

wherein the routing control section directly copies data of a memory area, which is a part of the virtual memory areas and for which data transfer is performed, to a memory area of the data transfer destination.